

# **IMPLEMENTING 5S AS A STRATEGIC TOOL IN IMPROVING QUALITY & PRODUCTIVITY IN HIGHER EDUCATION UNIVERSITI UTARA MALAYSIA (UUM) EXPERIENCE**

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## **Abstract**

*Organizations today are faced with many new challenges in the new millennium. There have been tremendous pressure than ever before to improve the quality of goods and services provided. Improvement in quality and productivity are critical factors in determining the competitiveness of an organization and the nation. One of the strategic tools that can be used to improve quality and productivity of an organization is by implementing 5S. 5S is basically a determination to organize the workplace, keep it neat, maintain standardized conditions, and maintain discipline. Some of the benefits of implementing 5S successfully include increase in productivity, quality control, cost-effectiveness, prompt delivery, safe working conditions and high morale among the workers. 5S is program that involves the participation of everyone in the organization. Based on the beliefs and past experiences of other organizations, these activities can lead to improvement of quality environment and positive work culture and therefore, University Utara Malaysia (UUM) has embarked on the 5S program. This paper will highlight the process of implementing 5S at the university as well as the issues involved in the smooth and implementing the activities successful, hence supporting the university in creating a healthy environment and positive work culture.*

## **INTRODUCTION**

In the 21<sup>st</sup> century, organizations today face many new challenges such as globalization, the impact of technology and market deregulation. The consequences of such challenges lead them to face stiff competition with organizations worldwide. To ensure their survival, many of them have started restructuring their existing processes and reinventing new programs which include becoming more customer and quality oriented. Thus, in recent years many of them have introduced total quality initiatives, also better known as total quality management (TQM). Improvement in quality and productivity are critical factors that determine organizational competitiveness and survival. One of the strategic tools that can be used to improve quality and productivity of an organization is through the implementation of the 5S program. Although the 5S program appears to be a vital tool, its implementation forms the basis for the development and improvement of activities to ensure organizational survival.

## OVERVIEW OF 5S

5S originates from Japan. It is an acronym for five Japanese words that are Seiri, Seiton, Seiso, Seiketsu and Shitsuke. 5S is basically a determination to organize the workplace, keep it neat, maintain standardized conditions, and maintain the discipline. Seiri is sorting out necessary and unnecessary items and then discarding the unnecessary items from the workplace. Seiton is arranging and placing of items systematically so that they can be accessed/retrieved effectively and efficiently. Seiso is getting rid of waste, grime, and foreign matter, to establish a clean working environment. Seiketsu is establishing standardization at the work place by continually and repeating Seiri, Seiton and Seiso so that the work place is always maintained in good order. Finally Shitsuke is creating a situation where all staff in the organization always use the first four's until it becomes a culture and daily part of their jobs. In order to make it more comprehensible as well as for training purposes, the Quality Management Institute (IPQ) in UUM has translated the Japanese words into the English and Malay languages with words starting with the letter 'S'. The terms are summarized below:

- SEIRI = SORTING OUT = *SISIH*
- SEITON = SYSTEMATIC ARRANGEMENT = *SUSUN*
- SEISO = SPIC & SPAN = *SUCI*
- SEIKETSU = STANDARDIZING = *SERAGAMKAN*
- SHITSUKE = SELF DISCIPLINE = *SENTIASA AMAL*

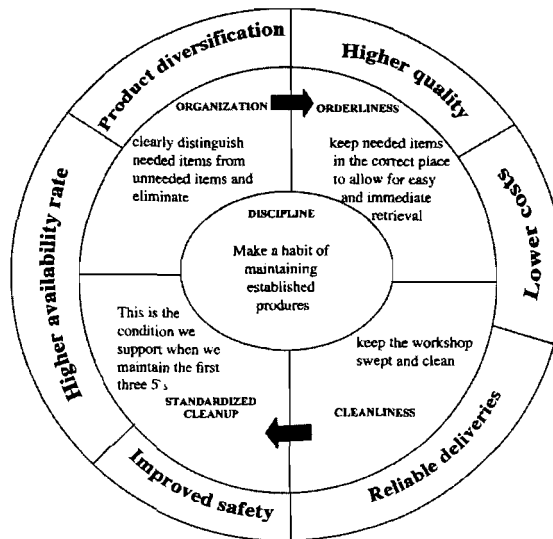


Figure 1. Meaning of the 5S's (Hirano, 1995)

In summary, 5S comprises sorting out, arranging systematically, cleaning and maintaining a productive and quality working environment. According to the 5S philosophy, only a neat, organized, clean, safe and disciplined working environment can guarantee effectiveness and

efficiency of work in an organization. Efficient and effective work are the keys to improving quality and productivity in an organization. The meaning of 5S and its benefits are summarized in Table 1.

### BACKGROUND OF 5S IN UUM

The implementation of 5S in UUM originates from its strategic planning in 1999 towards achieving a world class university by the year 2005. The ninth strategy out of the eleven strategic goals states that quality culture is practiced in UUM. Thus, in order to build a quality culture in UUM, the Quality Management Institute (IPQ) was given the task to create and implement programs which can enhance quality culture among the university staff. To achieve the goals, IPQ developed the total quality implementation model, which is also known as “Total Quality IPQ/UUM Ihsanic Total Quality Model” (Mohammad Noor, Rushami Zien & Sabarani, 2000). The performance indicator was established to guide the implementation process. The indicators are as follows:

Table 1

*Performance Level Indicators*

Level	Performance Indicators
Level 1	Unsystematic - Process ranges from those that have not been systematically carried out, defined and documented to those that have been claimed to be systematically carried out but still not being systematically documented. Performance related to the process ranges from not being systematically measured, documented and consultants achieved.
Level 2	Process defined and documented - Process has been systematically defined and documented but baseline quality system requirements have not been met yet.
Level 3	Baseline Quality System Exist - Baseline Quality System requirements met (ISO 9001/2) but performance is still modest (based on internal strength).
Level 4	System - Process is systematically analyzed against customers and stakeholders' expectations, improvement programs streamlined and quality objectives being optimized and met.
Level 5	Competitive - Process and performance is benchmarked against competitive players and continue to improve.
Level 6	World Class - Process and performance are world class and continue to improve.

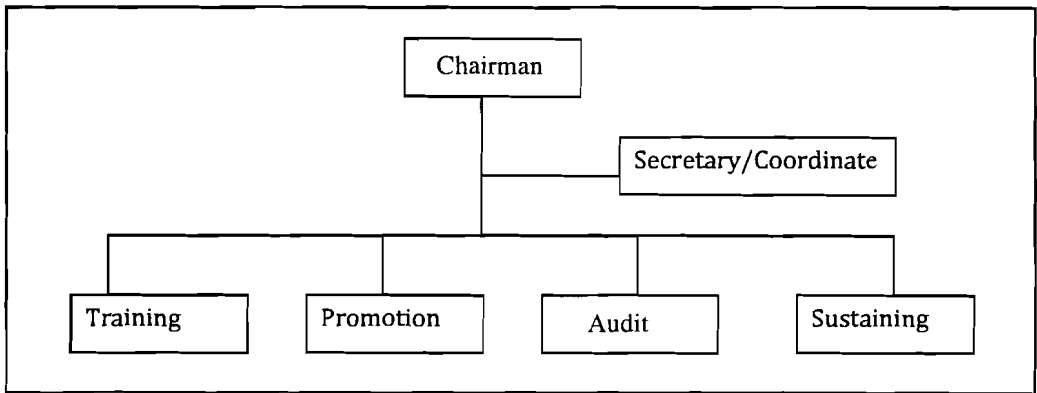
The 5S program started at the end of level 2 with the awareness course on 5S practices being conducted by the National Productivity Council (NPC) to a group of representatives from each department in UUM on the 27<sup>th</sup> and 28<sup>th</sup> of November 2001. The main aim of the course was to maintain orderliness or systematic arrangement and neatness of the filing system. This was important for the departments especially during the auditing process of ISO 9002 by external auditors December that year. The course will also help to streamline the administration system of all departments in the university in terms of cleanliness and maintain a healthy working environment.

The implementation of 5S in UUM began to take on a serious note at the level 3 stage whereby the baseline of the quality system exists but performance is still modest. The aim here was not only to create and build a clean, organized and positive work culture in order to improve work quality and productivity but also to support the quality system currently carried out by the university (MS ISO 9002) and assist the university to convert and upgrade it to the new version of quality system, i.e. MS ISO 9001:2000.

The activity started in February 2002 by developing a 5S training module adapted to the university culture and environment. The module was carefully developed to ensure maximum understanding among the staff and provided examples of a service organization particularly related to the university environment. The module was tested during a workshop involving staff at the treasury department and students from one of the colleges in the university. The participant were divided into two groups and the workshop was held on two different dates.

Based on the outcome of the workshop and feedback from the participants, the module was modified and improved. Next, a new module was developed for the purpose of training facilitators for the 5S program. Training was given to selected staff and representatives from every department to become facilitators of 5S activities in their respective departments. The course/workshop was held for three days in Hatyai, Thailand at a total cost of RM 8, 815. About thirty selected representatives attended the course. The roles of the facilitators include providing training as well as maintaining and becoming assessors for the 5S activities.

Having successfully trained all the staff in the university, the 5S initiatives was implemented at the department level. A 5S committee was set up at each of the departments headed by the chairman to monitor and maintain the activities. Some of the tasks and responsibilities of the working committee include identifying the 5S concept structure and department goals, establishing policies and rules, planning activities, providing training related to 5S practices to staff, promoting and sustaining the development of the 5S campaign. Figure 2 showed the typical structure of the 5S working committee in each department.



*Figure 2. 5S Working committee structure*

The program began by implementing the first “S”, which is Seiri or sorting out. The process involved categorizing used and unused items. The used items were classified according to frequently used, occasionally used and unused items but all were kept for legal law purposes. Unused items were classified into two categories. The first category consists of items which were still functional but not used because of new substitutes. The second category comprised items that could not be used because they were not functional anymore because they had already expired or become outdated. The key steps involved in sorting out are:

### **Identify Location for Process of Sorting Out**

The location for process of sorting out was divided into two areas. First, was the operation area, which can be classified into:

- a) Staff workplace.
- b) Walking area.
- c) Staff common area.
- d) Customer area.
- e) Wall and information board.

The second area was the store, where the organization kept their operation items.

### **Identify Who was Involved with the Sorting Out Process**

Normally, staff whose workplace were dirty and disorganized and were identified to carry out the process of sorting out. To ensure that the activities were carried out successfully the involvement of the management of the department was essential. For example, the involvement of a director in the department will boost the motivation of the staff and create

seriousness in implementing the 5S activities. The 5S working committee participated in the strategic planning of the 5S activities. Others involved include other units or department, which assisted in the sorting out activities. For example, the involvement of building and maintenance department provided support in terms of transportation of items which were not needed to designated areas.

### **Identify When the Sorting Out Process Will be Implemented**

The sorting out activity is generally done periodically. The 5S steering committee was responsible to prepare the schedule for the department or unit. The activity can be carried out once in a few months or once in a few weeks depending on the situation and need. The committee will fix the suitable date for the sorting out activity at every workplace. Individuals need to do the sorting out activity at their workplace first before carrying out the red tagging activity.

### **Red Tagging**

Before red tagging is carried out, groups are assigned different locations. This is to ensure that tagging becomes easier and cross functional in the area of the department or unit. A 3 hour period is allocated for the tagging activity to be carried out by the group in accordance to the rules specified. Items identified to be red tagged are recorded and carried out accordingly rules. A period of time was given to the individual to provide justification for the red tagged item. If the justification is acceptable the tagging will be removed.

### **Method of Sorting**

Sorting is referred to the steering committee. Certain items need to be approved by the university committee.

### **Recording Items**

Items that have been identified for sorting out will be recorded for filing purposes.

### **Sorting Out**

Once an item has been recorded, it will then be sorted out.

### **Checking and Monitoring Red-Tag Items**

Based on the records and checklists, the 5S committee will check and monitor the red-tagged items to ensure that they have been sorted out and whether if there is a need to red-tag them again. The committee will then prepare a report to fix a new date to carry out further checks. The second 'S', which refers to systematic arrangement begins after all the items have been sorted out. During this activity, all items are arranged accordingly in order that nobody can

see where they are kept. The aim of this activity is to ensure that staff in the department can identify locate, access items and return them to their original place within a short period of time. Generally, nine principles are practiced by the staff in arranging items. They are as follows:

1. Using the method of 'First in first out' (FIFO) in placing items.
2. Establishing a location for an item.
3. Labelling all items and then locations.
4. Placing items where they are easily seen.
5. Accessing items easily.
6. Separating exclusive and expensive items.
7. Placing items according to product category.
8. Using equipment for large and heavy items.
9. Placing frequently used items nearer to the workplace.

The cleaning process is carried out immediately after the process of arrangement. To maintain a standardized state or condition at a certain point in time after the previous 3S activities, staff is allocated areas to take charge. In addition to their own workplace, the staff is also assigned, common area of responsibility such as a photocopy room, pantry, customer counter and resource room. To instil discipline among the staff, the committee uses 5S visual and promotion tools such as 5S slogans, 5S stickers, 5S posters and in-house articles and news featuring 5S related matters.

## **5S PRACTICES COMPETITION**

To enhance motivation and morale of the staff in implementing and maintaining 5S activities, a competition among the departments in the university was organized. Paperwork was prepared to get approval from the top management to implement the 5S competition. Three objectives were outlined in the paper for the competition. They are as follows:

- i) To develop a clean, organized and pleasant working environment and positive work culture to improve quality and productivity.
- ii) To support the existing quality system (MS ISO 9002) held by the university.
- iii) To organize the 5S competition as a catalyst for systematic administration and management in order for UUM to achieve its mission of winning the Prime Minister Quality Award.

After obtaining approval, full support and commitment from the top management and staff, a competition among was held among departments at the university level. At this stage, the competition was promoted aggressively by IPQ among all departments, using banners, streamers and posters. A memo pad with the 5S definitions printed on the cover was given to each staff to raise awareness of the 5S campaign.

The auditing process was held for thirteen (13) days from 2<sup>nd</sup> to 14<sup>th</sup> June 2002. The auditor was selected among the thirty facilitators trained by IPQ. The competition was opened to all departments and classified into three categories, comprising are colleges, schools (faculties) and administration departments. For every category, five locations were evaluated based on specified criteria. The places evaluated were:

- i) The passageway.
- ii) The office.
- iii) The meeting room.
- iv) The toilets.
- v) The store.

The department that obtained the highest total marks for all the five locations evaluated under their category emerged as winners. Prizes were awarded to the first, second and third places for each category. In addition, prizes and certificates were also given to departments that obtained the highest total marks for the five locations overall. The total cost incurred for the competition was RM 13,450 including promotion activities.

The results of the auditing was evaluated and endorsed by the selection committee. The Vice-Chancellor chaired the committee comprising the Deputy Vice-Chancellor of Development, the Registrar, the Deans' representatives and Director of Quality Management Institute. The prize was awarded during the gathering on Quality Day, which is normally held yearly during which the excellent service award is presented to employees. The key events of 5S in 2002 are summarized as below:

Table 2

*Key Events of 5S*

Events	Date
Awareness course on 5S practices by National Productivity Council (NPC)	27 - 28 November 2001
5S Module Development	17-21 February 2002
5S Workshop for Treasury Dept. & EON College (Group A)	24-25 March 2002
Revision of 5S Module	27-28 March 2002
5S Workshop for Treasury Dept. & EON College (Group B)	2-3 April 2002
Development of 5S module for trainers	10-14 April 2002
5S Workshop (Training of Trainers)	17-19 April 2002

(continued)



Events	Date
Training to all staff by facilitators from each department & 5S initiatives	21 April – 15 May 2002
Promotion of 5S Competition	1 May – 30 May 2002
5S Auditors Briefing	22 May 2002
5S Audit	2-14 June 2002
5S Evaluation Meeting	26 June 2002
Prize Giving Ceremony on Quality Day & Award Gathering Event	4 July 2002

## CONCLUSION

This paper attempts to provide some insights on Universiti Utara Malaysia experiences in initiating 5S to all staff in the campus. Earlier when 5S was introduced many were skeptical on the success of the program. However, after its implementation, there were changes in staff attitude towards housekeeping. They realized how important it's to maintain an organized and clean workplace. Many were motivated to incorporate the 5S activities in to their everyday work practices. The program does not only motivate the staff but also contributes to increase teamwork among them as cooperation among staff is required for successful implementation.

5S practices have improved the quality and productivity of UUM staff by enhancing effectiveness and efficiency. Effectiveness means the ability of the organization and its members to carry out activities appropriately without errors. For example practicing 5S, has enabled staff to be able to access files correctly from their exact location. Furthermore, they are able to do it within a short period of time. This raises productivity as time is not wasted in looking for files or items. Thus, accessing an item correctly and guidely has enhanced effectiveness and efficiency, contributing towards an increase in quality and productivity.

The implementation of 5S has also promoted safe and healthy working environment at the university which includes eliminating of unnecessary items, disallowing items to be placed to place on the floor especially passageway, and keeping up the standard of cleanliness of the items and floor. This is supported by the National Safety Council (1992) that good housekeeping eliminates safety problems; improve morale, and increase efficiency and effectiveness.

Many other organizations have also successfully adopted 5S at their workplace. For example, Boeing Co. used 5S tools to examine each job process in order to eliminate the routine and wasteful activities that pose potential safety hazards. Cooke Brothers Ltd. Implemented the 5S program with results showing that the tools helped to introduce and

improve environmental management practices, housekeeping, employee safety and health (Becker, 2001). On the other hand, Harris Ireland Ltd used 5S tools, which is part of the Total Productive Maintenance (TPM) to support an established total quality programme. The results indicated that the TPM implementation has contributed toward continued success in total quality management initiatives and total quality journey (McAdam & Duffner, 1996). Thus, this is in line with one of the objectives of implementing 5S in UUM, which is to support the quality system currently adopted by the university (MS ISO 9002) to help convert and upgrade the new version of the quality system, i.e. MS ISO 9001:2000.

Although the 5S appears to be basic tools that are easy to understand and implement, the activities are difficult to maintain. Osada (1991), noted in his book:

*The 5S's are not that difficult to understand. However, they are very difficult to do well. They require perseverance and determination. They require constant effort. They require the ability to see what is important and to pay attention to details. They may not show dramatic results, but they do show results. They show results in terms of more convenient work practices. They show results in terms of less downtime. They show results in terms of workers who take pride in their work. And they show results in higher productivity and better quality because people who care about their work do a better job.*

This is one of the challenges that UUM has to face in sustaining the 5S practices in the future as the successful implementation of 5S not only requires resources but also a commitment from the top management right down to the employees. Thus, the journey towards achieving a world class university continues.

## REFERENCES

- Becker, J. E. (2001). Implementing 5S to promote safety & housekeeping. *Professional Safety*, 46(8).
- Hirano, H. (1995). *5 pillars of the visual workplace: The sourcebook for 5S implementation*. (B. Talbot, Trans.). Portland: Productivity Press. (Original work published 1990).
- McAdam, R., & Duffner, A. (1996). Implementation of total productive maintenance in support of an established total quality programme. *Total Quality Management*, 7(6), 17–22.

- Mohammad Noor Salleh, Rushami Zien Yusoff & Sabarani Ghazali (2000, May). *The Northern University of Malaysia journey towards a world-class university – The development of world-class quality and productivity systems and strategies*. Paper presented at the ASAIHL Conference Bangkok.
- National Safety Council. (1992). *Accident prevention manual for business and industry: Administration & programs (10<sup>th</sup> ed.)*. Chicago: NSC.
- Osada, T. (1991). *The 5S's: Five keys to a total quality environment*. Tokyo: Asian Productivity Organization.